

Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 085B

Mile Post (ON)11: 200.345 mi

Bridge Key: F-16-IC

Inspection Date: 8/23/2012

Sufficiency Rating: 92.9 FO

Rgn/Sectn 2E/2M:	68	Hist Signif 37:	5	UW Inspection Date 93B:	
Trans Region 2T:	02	Posting status 41:	A	SI Date 93C:	11/26/2004
County Code 3:	035	Service on/un 42A/B:	6 1	Bridge Cost 94:	\$ 725,788
DOUGLAS		Main Mat/Desgn 43A/B:	2 6	Roadway Cost 95:	\$ 72,579
Place Code 4:	00000	Appr Mat/Desgn 44A/B:	0 0	Total Cost 96:	\$ 1,088,681
non-city		Main Spans Unit 45:	2	Year of Cost Estimate 97:	2006
Rte.(On/Under)5A:	1	Approach Spans 46:	0	Brdr Brdg Code/% 98A/B:	
Signing Prefix 5B:	2	Horiz Clr 47:	84.0 ft	Border Bridge Number 99:	
Level of Service 5C:	1	Max Span 48:	118.1 ft	Defense Highway 100:	0
Directional Suffix 5E:	0	Str Length 49:	233.1 ft	Parallel Structure 101:	N
Feature Intersected 6:		Curb Wdth L/R 50A/B:	0.0 ft 0.0 ft	Direction of Traffic 102:	2
SH 470 ML		Width Curb to Curb 51:	84.0 ft	Temporary Structure 103:	
Facility Carried 7:		Width Out to Out 52:	86.5 ft	Highway System 104:	1
US 85 ML		Deck Area:	20,160.8 sq. ft	Fed Lands Hiway 105:	0
Alias Str No.8A:		Min Clr Ovr Brdg 53:	99.99	Year Reconstructed 106:	1996
		Min Undrclr Ref 54A:	H	Deck Type 107:	1
Prll Str No. 8P		Min Undrclr 54B:	16.3 ft	Wearing Surface 108A:	6
		Min Lat Clmce Ref R 55A:	H	Membrane 108B:	2
Location 9:	328.05117409	Min Lat Undrclr R 55B:	28.0 ft	Deck Protection 108C:	1
JCT US 85 & SH 470		Min Lat Undrclr L 56:	16.0039362	Truck ADT 109:	8 %
Max Clr 10:	99.99	Deck 58:	6	Trk Net 110:	1
BaseHiway Net12:	1	Super 59:	6	Pier Protection 111:	#
IrsinvRout 13A:	000000085B	Sub 60:	7	NBIS Length 112:	Y
IrrsubRout No13B:	00	Channel/Protection 61:	N	Scour Critical 113:	N
Latitude 16:	39d 33' 51"	Culvert 62:	N	Scour Watch 113M:	0
Longitude 17:	105d 01' 60"	Oprrtg Rtg Method 63:	1 LF Load Fact	Future ADT 114:	64,296
Range18A:	68 W	Operating Rating 64:	59.0	Year of Future ADT 115:	2028
Township18B:	68	Inv Rtg Method 65:	1	CDOT Str Type 120A:	CBGC
Section18C:	6	Inventory Rating 66:	36.0	CDOT Constr Type 120B:	4.
Detour Length 19:	0.6 mi	Asph/Fill Thick 66T:	002 "in"	Inspection Indic 122A:	
Toll Facility 20:	3	Str. Evaluation 67:	6	Inspection Trip 122AA:	
Custodian 21:	1	Deck Geometry 68:	3	Scheduling Status 122B:	
Owner 22:	1	Undrclr Vert/Hor 69:	5	Maintenance Patrol 123:	30
Functional Class 26:	12	Posting 70:	5	Expansion Dev/Type124:	D
Year Built 27:	1970	Waterway Adequacy 7:	N	Brdg Rail Type/Mod 125A/B:	Y 0
Lanes on 28A:	7	Approach Alignment 72:	8	Posting Trucks 129A/B/C:	0 0 0
Lanes Under 28B:	4	Type of Work 75A:	33	Str Rating Date 130:	9/24/1996
ADT 29:	42,300	Work Done By 75B:	1	Special Equip 133:	-1
Year of ADT 30:	2008	Length of Improvment 76:	232.9 ft	Vert Clr N/E 134A/B/C:	E 16.50 16.50
Design Load 31:	5	Insp Team Indicator 90B:	WHITE TEAM	Vert Clr S/W 135A/B/C:	W 16.25 16.25
Apr Rdwy Width 32:	82.0 ft	Inspector Name 90C:	BUTKOVICHJ	Vertical Clr Date:	9/23/2002
Median 33:	0	Frequency 91:	24 months	Weight Limit Color: 139:	0
Skew 34:	20.00 °	FC Frequency 92A:	-1	Str Billing Type:	U
Structure Flared 35:	0	UW Frequency 92B:	-1	Userkey 1 - System:	ONSY
Sfty Rail 36a/b/c/d:	1 1 1 1	SI Frequency 92C:	-1	Userkey 7-Update Indic:	
Rail ht36h:	35 "in"	FC Inspection Date 93A:			

Inspector Name: BUTKOVICHJ

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Element Inspection Report

Elm/En	Description	Units	Total Qty	% in 1	CS 1	% in 2	CS 2	% in 3	CS 3	% in 4	CS 4	% in 5	CS 5
26/4	Conc Deck/Coatd Bars	(SF)	20,163	100 %	20,163	0 %	0	0 %	0	0 %	0	0 %	0
105/4	R/Conc Box Girder	(LF)	2,563	14 %	361	84 %	2,161	2 %	41	0 %	0	0 %	0
205/4	R/Conc Column	(EA)	4	100 %	4	0 %	0	0 %	0	0 %	0	0 %	0
215/4	R/Conc Abutment	(LF)	173	93 %	161	3 %	5	4 %	8	0 %	0	0 %	0
221/4	Conc Pile Cap/Ftg	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
234/4	R/Conc Cap	(LF)	88	0 %	0	91 %	80	9 %	8	0 %	0	0 %	0
300/4	Strip Seal Exp Joint	(LF)	173	100 %	173	0 %	0	0 %	0	0 %	0	0 %	0
321/4	R/Conc Approach Slab	(EA)	2	100 %	2	0 %	0	0 %	0	0 %	0	0 %	0
325/4	Slope Prot/Berms	(EA)	2	0 %	0	100 %	2	0 %	0	0 %	0	0 %	0
326/4	Bridge Wingwalls	(EA)	4	75 %	3	25 %	1	0 %	0	0 %	0	0 %	0
334/4	Metal Rail Coated	(LF)	466	100 %	466	0 %	0	0 %	0	0 %	0	0 %	0
338/4	Conc Curbs/SW	(LF)	466	100 %	466	0 %	0	0 %	0	0 %	0	0 %	0
340/4	Superstr Cnc Coating	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
341/4	Substr Conc Coating	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
359/4	Soffit Smart Flag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0

Elem/Env	Description	Element Notes
26/4	Conc Deck/Coatd Bars	2 inches of asphalt. Looks good overall. Few very light, short, longit. cracks.
105/4	R/Conc Box Girder	Forward 1/3 and rear 1/3 of cells have diag. cracks that were epoxy injected during 1997 rehab., seen on exterior, evident in many PHOTOS, and interior. Hairline to light (1/16 inch) map cracks seen on bottom flanges above slope paves. Efflor. seeping through trans. and diag. cracks on bottom flanges in both spans (See 10-2000 PHOTO), probably prior to deck replacement in 1997. Interior - Light and hairline cracks on conc. cover repair on pier diaphs. in each bay. Light vertical cracks at all diaphragm access holes. Fewer and lighter in web access holes. Minor scrapes, including 20 inch x 10 inch spall from high load (9-2006, 7-2008 PHOTOS) on left edge of bottom flange over EBL.
205/4	R/Conc Column	Columns at angle as in V, scrapes and nicks on all columns, probably during rehab. constr. Light shrinkage cracks.
215/4	R/Conc Abutment	Light to >1/32 inch vert. cracks in Abut. 1. Abut. 3 has vert. cracks which are 1/16 inch at bridge seat and then narrow to hairline at top of wall. These are at about 5 foot intervals. Scale at left end of Abut. 3 painted over. Abut. 1 left at top has light scale with efflor.
221/4	Conc Pile Cap/Ftg	Considered the pedestal portion between columns as footing. Looks OK.
234/4	R/Conc Cap	Cap is visible only from interior of box girders. All cells have random and map cracking, some new since reconstruction. Cells A, B, and C have some cracks open to >1/16 inch. Transverse Post tensioning 4 horiz. bars placed at four corners of cap full width to add stressing. Ends of bolts visible at each end of cap - no cracking around bolt ends. Horiz. and map cracks between bolts, see 9-2006 PHOTOS.

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300/4	Strip Seal Exp Joint	Replaced asphaltic plug joints. Both are full of dirt. Light to moderate longit. cracks in concrete end dams.
321/4	R/Conc Approach Slab	Asphalt has longit. and trans. cracks on top. No settling problems seen.
325/4	Slope Prot/Berms	Concrete slope paving on both abut. slopes. Have been mud jacked. A few horiz cracks. Pulled away from Abut. 1: 6.5 inches and 5 inches at Abut. 3. Footings for rehab. support (of superstructure) poured at base of both, now limit movement of the slope pave. Small section settled 6 inches at #3 left end at top.
326/4	Bridge Wingwalls	#1 left wing has spall at rail post anchor due to water deterioration and erosion (See 7/2008 and 2012 PHOTO). All have light vertical cracks. Scale on #3 right painted over.
334/4	Metal Rail Coated	Galvanized Type Y rail. Looks good.
338/4	Conc Curbs/SW	Light vert. and trans. cracks in both curbs, typical.
340/4	Superstr Cnc Coating	On exterior webs and at deck overhangs only. Cracking and peeling at shear crack locations on exterior webs.
341/4	Substr Conc Coating	1997 coating on wingwalls and ends of both abuts, looks good. Areas of coating on all columns have scrapes and chips, done during rehab. construction.
359/4	Soffit Smart Flag	Bottom of deck (1997) has light map cracking throughout and diag. cracks at corners of every cell starting at every pier diaph. Hairline to 1/32 inch map cracks seen throughout. Trans. crack with light efflor. near pier, Bay 2B. Few other trans. cracks with light efflor. 4 s.f. area of rock pockets in Bay 1B near Abut. 1.

Maintenance Activity Summary

MMS Activity	Description	Recommended	Status	Target Year	Est Cost
353.06	Br Dk Rpr	9/21/2006	-1	2014	800

Install drain at the left forward corner where water ponds, gets splashed over the side of the curb. Compounded problem when freezing temperatures.

356.02	Curb & RI	8/23/2012	-1	2014	-1
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Patch curb at rail post on top of #1 left wingwall.

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Bridge Notes

Access into box girders at Bays 1J and 2B at top of slope pave, need large common screw driver. Once inside, the 25 inch diam. holes through the webs are HARD to get through because they are TOO SMALL. Inspectors in 2006 only went into a couple of bays near both access holes. Inspectors in 2008 went into all of Span 1. Inspectors in 2012 went into all cells in Span 2. UTILITY: 2 inch dia. conduit on right mounted to exterior web. STRUCTURE FOLDER WAS STOLEN FROM RED TEAM VAN IN FALL 2000. ALL PREVIOUS REPORT INFORMATION PRIOR TO BRIDGE REHAB. HAS BEEN LOST.

Inspection Notes

Time: 9:15 Temperature: 68 Degrees Weather: Partly sunny Team leader: JWB

Scope:

☒ NBI: ☒ Element: ☐ Underwater: ☐ Fracture Critical: ☐ Other: Type: Regular NBI

Inspector: BUTKOVICHJ

Inspection Team:

Inspection Date: 08/23/2012

Inspector

Inspector